



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Name of Program: B.TECH (Textile Engineering)

SUBJECT CODE	CATEGORY	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTTX701	DCS	ADVANCE YARN MANUFACTURING	60	20	20	30	20	3	1	2	5

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):

1. Course will provide the knowledge about the limitation of ring spinning system and its versatility.
2. Course will provide detail knowledge about the manufacturing of rotor yarn and its structure.
3. Course will provide introductory knowledge about the other advance yarn manufacturing system.

Course Outcomes (COs)

Student will be able to

1. Demonstrate their knowledge on the limitation of ring spinning system and development of advance yarn system.
2. Identify, analyse and design of rotor yarn production system.
3. Recall the knowledge of air jet and wrap spinning system

Course Contents:

Unit I

Limitations of conventional methods of spinning, Developments in ring spinning to overcome the such limitations. Summary of different new spinning process and their possibilities and limitations;

Unit II

Rotor spinning- Overview, objects, developments, principle and speed; Raw material requirements and preparation; Method of operation - opening unit, yarn formation, structure and aspects of rotor and its influence on yarn, yarn withdrawal and winding system, automation. Calculation related to twist, production etc.

Unit III

Rotor Yarn characteristics - structure and its difference with ring spun yarn, brief idea about the end products; Production of fancy yarn/core spun yarn in rotor spinning.



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Unit IV

Air Jet Spinning - Principle, raw material requirements, yarn characteristic and yarn structure, comparison with ring spun yarn, inter-relationships in spinning technology, end use of yarn.

Unit V

Friction spinning - Principle, raw material requirements, yarn structure and its comparison with ring spun yarn, end uses of yarn. Brief Idea about Wrap spinning, Air vortex spinning, plyfil, parafil, disc spinning, rubbing technique, repco, electrostatic spinning, adhesive process like bobtex and twist less spinning etc.

List of Practical (Expand it if needed):

1. To study the passage of material through Ring-Frame present in spinning lab.
2. To study the passage of material through 6 spindle High-Draft Miniature Ring-Frame.
3. To study the gear-train of 6 spindle High-Draft Miniature Ring-Frame.
4. To calculate total draft, tpm, tpi, TM and production of 6 spindle High-Draft Miniature Ring-Frame.
5. To calculate the draft constants for the different drafting zones for the 6 spindle High-Draft Miniature Ring-Frame.
6. To calculate the twist constant for the 6 spindle High-Draft Miniature Ring-Frame.
7. To study the passage of material through Miniature Rotor Spinning Machine.
8. To study the gear-train of Miniature Rotor Spinning Machine.
9. To study the passage of material through the Miniature model of Air-Jet Spinning.
10. To study the gear-train of Miniature model of Air-Jet Spinning.

References:

1. The Textile Institute-Short Staple Spinning, Series-Klein. (Vol.5) Spinning - P.R.Lord
2. New Spinning Systems - R.V. Mahendra Gowda (NCUTE Pub.)
3. Handbook of yarn production, Peter R. Lord, Woodhead 2003
4. Spinning in 70's - P.R. Lord
5. Rotor Spinning-ATIRA
6. Cotton Spinning calculatiuous -Taggart.
7. Recent Advances in Spinning Technology - BTRA International Technical Conference Report
8. Yarn Production Theoretical Aspects, P Grosberg, C Iype, Woodhead 1999



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SUBJECT CODE	CATEGORY	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTTX702	DCS	ADVANCE FABRIC MANUFACTURING	60	20	20	30	20	3	1	2	5

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;
*Teacher Assessment shall be based following components: Quiz/Assignment/Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):

1. Course will provide the knowledge about the working mechanisms of shuttleless looms.
2. Course will provide the knowledge about Filament weaving.
3. Course will provide the introductory knowledge about multiphase weaving, circular weaving and triaxial weaving.

Course Outcomes (COs)

Student will be able to

1. Describe the working mechanisms of shuttleless looms and can produce fabrics as per desired quality and specifications.
2. Adjust and modify the weaving machines for Filament weaving correctly.
3. Describe the working of multiphase weaving, circular weaving and triaxial weaving.

Course Contents:

Unit I

Comparison of shuttleless weaving with shuttle weaving, Introduction to different weft insertion systems on shuttle less weaving machines, weft accumulators and weft measuring devices used in shuttleless weaving.

Unit II

Sulzer Projectile Loom – features; projectile guides, projectile feeding mechanism, weft insertion cycle of projectile loom, torsion bar picking mechanism, matched cam beat up mechanism, No. of projectile required for different widths of projectile loom.

Unit III

Rapier loom - different types and features, yarn transfer systems in different rapier looms. Two phase rapier, weft insertion cycle of rapier looms, rapier drives for rigid and flexible rapier.


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Unit IV

Jet loom - principles of air and water jet weft insertion and their comparison, weft buckling, weft insertion cycle of Air jet loom, different traversing aid used in air jet loom, weft insertion cycle of water jet loom.

Unit V

Introduction to Triaxial and narrow fabric weaving; Essential requirements of filament weaving.

List of Practical (Expand it if needed):

1. Introduction of shuttle less looms and compares it with shuttle loom.
2. To study weft insertion cycle of projectile loom.
3. To study Torsion bar picking mechanism
4. To study matched cam beat-up mechanism.
5. To study weft insertion cycle of Rapier loom- Dewas system.
6. To study weft insertion cycle of Rapier loom- Gabler system.
7. To study weft insertion cycle of Air jet loom.
8. To study weft insertion cycle of Water jet loom.
9. To study circular loom.
10. To calculate heald count, Reed count, Dividend of take up mechanism and speed of all loom present in our workshop.

References:

1. Shuttleless Weaving - Dr. M. K. Talukdar
2. Principle of Weaving - Marks & Robinson
3. Textile Science & Technology Shuttleless Weaving Machines Oldrich, Talavasek & Vladimir Svaty
4. Modern Preparation and Weaving Machinery - A. Ormerod.
5. Handbook of Weaving, Sabit Adanur, Ph. D.
6. Weaving Technology & Operation - A. Ormerod & Walter S. Sondhelm
7. Rapier Loom - WIRA
8. Filament Weaving NCUTE HRD Programme Coordinator Prof. P.A.Khatwani, Mr. S. S. Yardi,
9. Innovations in Weaving Machinery - (The Course of Loom Development) - Dr. Teruo Ishila
10. Modern Weaving Theory & Practice- R. B. Singh



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			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTTX703	DCS	TEXTILE CHEMICAL PROCESSING - II	60	20	20	30	20	3	1	2	5

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;
***Teacher Assessment** shall be based following components: Quiz/Assignment/Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):

1. Students will be able to use effectively principles and mechanisms roller printing and rotary screen printing on textile goods according to their end use.
2. Students will be able to impart different types of fabric finish as per end use.
3. Students will be able to impart Flame Retardent finish on textile goods as per end use.
4. Student will be able to select eco friendly chemicals

Course Outcomes (COs)

Student will be able to

1. Apply different methods and style of printing on natural and synthetic fiber fabric and blends.
2. Develop and design printed products as per demand
3. Create different finished fabric according to their application.
4. Explain various types of dyeing, printing and finishing processes

Course Contents:

Unit I

Introduction to printing different methods and styles of printing on natural and synthetic fibre fabrics and blends. Detailed study of different types of printing machines e.g. block, flat screen, roller and rotary screen printing.

Unit II

Different modern techniques of printing; paste preparation of different dyes, Advance development in printing machine operation; After treatment of different printing materials; Printing use in plastic materials.

Unit III

Introduction to finishing of natural and man-made fiber fabrics; Classifications of various finishes, finishing materials - their chemistry and application; Mangles drying ranges, IR drying, stenter, calendars, raising and milling machines.



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Unit IV

Permanent and semi permanent finishes, silicon softening, milling, crease resistant, anti shrink, water repellent, water proof, flame proofing, setting of synthetic fibre fabrics, antistatic and soil release finishes. Easy care finishing of cotton and polyester / cotton blends.

Unit V

Textile preservatives, miscellaneous finishings.

List of Practical (Expand it if needed):

1. Scouring of Silk
2. Dyeing of silk
3. Scouring of Wool
4. Dyeing of wool
5. Dyeing of polyester
6. Dyeing of Polyamide
7. Identification of dyestuff from dyed samples.
8. Determination of different fastness properties of dyed samples
9. Printing with different dyestuff on cotton,
10. Printing with different dyestuff on silk and polyester.

References:

1. Technology of printing Vol. IV Shennai
2. Technology textile finishing Vol. X Shennai
3. Engg. of Textile Colouration C. Duck Worth
4. Textile Finishing W.S.Murphy
5. Printing on Textiles by direct and transfer technique R.W. Lee
6. Electronics Control for Textile Machines Hiren Joshi, Gouri Joshi (NCUTE Pub.)
7. A Glimpse of the Chemical Technology of Textile Fibres R.R. Chakraverty
8. Trouble shooting in wet processing : Acetate, Rayon/Lycocell and Spandex Blends, Dunes



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Name of Program: B.TECH (Textile Engineering) BTTX714 ELECTIVE III

SUBJECT CODE	CATEGORY	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTTX714	DCS	TEXTILE MILL PLANNING AND MANAGEMENT	60	20	20	30	20	3	1	2	5

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):

1. Student will be able to identify and evaluate the preliminary requirements for starting of a textile plant and project management
2. Student will be able to demonstrate their conceptual knowledge to the pollution control of a textile mills.
3. Student will be able to investigate the correct reasons of various problems and their solution of a textile plant

Course Outcomes (COs)

Student will be able to

1. Apply their knowledge on the various factors for setting up a Textile plant.
2. Calculate production and use it in balancing of machineries.
3. Solve the reason of various problems and their solution of a textile plant.
4. Use their conceptual knowledge to the pollution control of a textile mills.

Course Contents:

Unit I

Selection of site for textile mills. Textile mill building structures. Principles and requirements of good foundation for machineries. Protection against noise and vibration. Erection of textile machinery. Importance of leveling methods and instruments used for leveling. Idea and comparison of preventive and breakdown maintenance.

Unit II

Spin plans for various counts and yarns. Production rates, waste, efficiency level of spinning machines. Estimation of number of machines for the given production of yarn. Production rates, efficiency etc. of preparatory and weaving shed. Estimation of number of machines in preparatory and weaving.



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Unit III

Plant lay-out and machine lay-out. Labor allocation in different departments of a textile mill. Work study, method study and work measurement. Application of time study in a textile mill. Importance and use of snap study. Concept and application of logistics in a textile mill. House keeping and Material handling equipments.

Unit IV

Air conditioning, humidification and ventilation for a textile mill - different systems of humidification and their efficiency. Temperature, relative humidity and ventilation requirement for different sections of a textile mill.

Unit V

Dust extraction in textile mills - methods and equipments used in dust extraction. Lighting - requirements and fittings, spacing of light fittings, illumination standards and measurements.

List of Practical (Expand it if needed):

1. To study regarding selection of site for Textile Mill.
2. To prepare layout of spinning workshop.
3. To prepare layout of weaving workshop.
4. To prepare layout of testing workshop.
5. To prepare layout of garment workshop.
6. To prepare layout of chemistry workshop.
7. To prepare layout of CAD Lab.
8. To Prepare a spin plan for given production.
9. To Prepare a weave plan for given production.
10. To study various steps involved in erection of machines

References:

1. Air Conditioning in Textile Industry -ATIRA
2. Industrial Engineering & Management -Banga Sharma
3. Textile Manufacturing -M. G. Kulkarni
4. Management of Textile Industry - V.D.Dudeja
5. Modern Preparation and Weaving Machinery - A. Ormerod
6. Humidification and ventilation management in textile industry, Purushottama B, Woodhead
7. Strategic approach for managing a textile, Karshanis A. V., 2009
8. Textile Mills in Changing Environment - M. L. Gulrajani.
9. Modern Technology Management in Textile - Prof. D. B. Ajgaonkar
10. Norms for the Textile Industry - ATIRA, BTRA, SITRA, NITRA
11. Time Study Manual - (For the Textile Industry) Norbert Lloyd Enrick
12. Textile industry effluent - WIRA



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Name of Program: B.TECH (Textile Engineering)
BTTX724 ELECTIVE III

SUBJECT CODE	CATEGORY	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTTX724	DCS	PROCESS CONTROL IN SPINNING AND WEAVING	60	20	20	30	20	3	1	2	5

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):

1. To outline the areas of process control in spinning and weaving technology.
2. To relate the importance of process control for achieving the desired quality and defect free product.
3. To illustrate the concepts of machinery audit and energy audit, machine maintenance, modern methods of house-keeping and material handling and different standard norms for various processes of the textile industry.

Course Outcomes (COs)

Student will be able to

1. Graduates will be able to construct process maps for different processes involved in spinning and weaving technology.
2. Graduates will be able to identify necessary process control check-points, so that these processes can be run at an optimum level of productivity.
3. Graduates will be able to summarize the reasons for generation of different types of defects in the final product.
4. Graduates will be able to demonstrate their skills in process inspections, machinery maintenance, machinery audit, energy audit.
5. Graduates will be able to describe the modern methods of house-keeping and material handling.

Course Contents:

Unit I

Importance and consideration for evolving a system for process control; Control of mixing quality and cost, control of waste and cleaning in blow room, card and comber; yarn realization; Control of yarn count; strength; evenness, imperfections and yarn faults; Control of end breaks in ring spinning.

Unit II

Concept of machinery audit and energy audit. House keeping and material handling, statistical interpretation of data on waste and quality. Snap study.


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Unit III

Control for quality, machine stoppage and productivity in winding, warping, sizing, pirn winding and weaving. Standard norms for setting, speeds and production rates. Fabric defects and their control.

Unit IV

Control of norms and hard waste in various processes . Importance and types of maintenance, Maintenance schedule in winding, warping, sizing and loom shed.

Unit V

Machinery audit and energy audit; Calculations pertaining to production efficiency and machine allocation in windings; warping, pirn sizing and looms.

List of Practical (Expand it if needed):

1. Process layout for spinning unit with process parameters.
2. Process layout for weaving unit with process parameters.
3. To study and analyze the winding defects.
4. To study and analyze the yarn defects.
5. To study and analyze the fabric defects
6. Calculate production efficiency of carding, Drawframe, Lap Former, Comber, Speed frame, Ring frame, Winding, Warping, Sizing, Weaving machine.
7. Calculate production and efficiency of carding, Draw frame, Lap Former, Comber, Speed frame and Ring frame.
8. Calculate production and efficiency of Winding, Warping, Sizing and Weaving machine.
9. Prepare maintenance schedule for Blow room, Carding, Drawframe, Lap former, Comber, Speed frame and Ring frame.
10. Prepare maintenance schedule for Winding, Warping, Sizing, and weaving machine.

References:

1. The Textile Institute; Manual of Cotton Spinning Volume IV, V;
2. The Textile Institute; Manual of Textile Tech. – Short Staple Spinning series – Vol.4
3. Klein W; A Practical guide to Ring Spinning
4. Kulkarni HS and Murthy HVS; Two-For-One – Technology & Technique for spun yarn;
5. Chhatopadhyaya R. (Editor); Advances in Tech. Of Yarn Production – NCUE Publication
6. Gong RH and R.M.Wright; Fancy Yarns- Their Mfg. And Application;
7. Gilbert Merrill; Cotton Ring Spinning
8. Taggart; Cotton Spinning
9. Goswami BC et al; Textile Yarns Technology, Structure & Applications
10. Salhotra KR et.al; Ring Spinning, Doubling & Twisting; NCUTE Pilot Programme Pub
11. Lawrence Carl A; Fundamentals of spun yarn tech



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Name of Program: B.TECH (Textile Engineering) BTTX734 ELECTIVE III

SUBJECT CODE	CATEGORY	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTTX734	DCS	CHEMISTRY OF INTERMEDIATE AND DYESTUFF	60	20	20	30	20	3	1	2	5

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):

1. Describe the various processes of chemical reactions of dye.
2. Recognize difference between natural and synthetic dyes.
3. Classify the dye stuffs and identify the new dyes.

Course Outcomes (COs)

Student will be able to

1. List out the various chemical reactions of aromatic and aliphatic compounds.
2. Test about the chemical reaction for identification of various dyes.
3. Plan the recipe for dyeing the given sample.
4. Illustrate the reactions of dyes.

Course Contents:

Unit I

Benzene intermediates: The Benzene Aromatic system, Sulfonation, Nitration, Halogenations, Alkylation, Introduction of Formyl and Carboxylic groups, Hydroxylation, Reaction with ammonia, Oxidation and Reduction, Heterocyclic Intermediates.

Naphthalene Intermediates: Sulfonation, Nitration, Halogenation, Hydroxylation Amination, Naphthalenesulfonic acid, Naphthols, Naphthyl amines, Aminonaphthols, Amino naphthalenesulfonic acid, Aminonaphtholosulfonic acid, 3-Hydroxy-2-naphtholic acid.

Unit II

Anthraquinone Intermediates: Reactivity, Routes to Anthraquinone compounds, Halo anthraquinone, Nitro anthraquinone, anthraquinone sulphonic acids, anthraquinone carbo derivatives, amino anthraquinone, hydroxy anthraquinone, anthraquinone ethers, anthraquinone thiols and thio ethers, Leuco intermediates, Benzanthrones.



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Unit III

Azo Dyes: Mechanism of the diazotisation and the azo coupling reactions, the diazotization reaction, azo coupling reaction, conclusion, Benzidine dyes, Stilbene dyes, after treated dyes, dyes from amino naphthol sulfonic acids, dyes from heterocyclic and acyclic intermediates.

Acid Dyes: Neutral dyeing, Milling dyes, chrome dyes, permetallised dyes.

Disperse Dyes: Mono azo dyes, Disazo dyes, water soluble dyes, spirit soluble dyes, food dyes

Unit IV

Anthraquinone Acid Dyes: Sulfonic acid, Di-hydroxy compounds, diamino compounds, amino hydroxy compounds, heterocyclic dyes, Anthrimides and naphthocarbazoles, Bromamine acid derivatives.

Disperse dyes: Yellow to orange structure, red structure, violet structure, blue to green structure, fused ring derivatives, water soluble dyes, and commercial product.

Vat Dyes: Carbocyclic dyes, Benzoquinones and naphthoquinones, Acylamino anthroquinones, Benzantraquinones and pyrenediones, anthrathrones, pyranthrones, dibenzanthrones. Solubilised vat dyes.

Unit V

Phthalocyanine pigments: Structure, properties, synthesis, application, unsubstituted Phthalocyanine, substituted phthalocyanine.

Phthalocyanine dyes: Phthalocyanine direct dyes, sulfonic acids, sulfonic acid derivatives, carboxylic acid, amino Phthalocyanine, Phthalocyanine vat dyes, Phthalocyanine sulphur dyes, Phthalocyanine formation in the fiber.

List of Practical (Expand it if needed):

1. To study and identify the dyestuffs
2. To study the chromophore and Auxochrome dyes with standard method of identification.
3. To study about various types of surfactants.
4. To examine the alkalinity of vat dye.
5. To make the isotherm of reactive dye using three variables.
6. To study about stripping of direct dye.
7. To study and examine the Topping rate after taking suitable dye.
8. To study the phytochemical evaluation of one natural dye.
9. To study about oxidising and reducing agents used in dyeing process
10. To examine the percentage of dye take up on the fabric.



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References:

1. Chemistry of Dyes and Principle of Dyeing Vol. II – VA Shennoi
2. Dyes and their Intermediates E.N.Abrahart
3. The Chemistry of Synthetic Dyes and Pigments; H.A. Lubs.
4. Color Chemistry – Zollinger
5. Synthetic Dyes – Dr. Pope Sine
6. Chemical Testing of Textiles (CRC), Fan

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Name of Program: B.TECH (Textile Engineering) BTTX715 ELECTIVE IV

SUBJECT CODE	CATEGORY	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTTX715	DCS	MERCHANDISING AND EXPORTS MANAGEMENT	60	20	20	-	-	3	1	0	4

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):

1. Student will be able to identify and evaluate the preliminary functions of marketing & merchandising management for textile components. And also they can have the understanding of export management
2. Student will be able to make obvious their conceptual knowledge to the Industry as a Merchandiser.
3. Student will be able to investigate the real scenario of Indian textile business with export management.

Course Outcomes (COs)

Student will be able

1. Apply their knowledge on the various functions of the marketing & merchandising.
2. Set the Business and make planning accordingly in the market
3. Understand the international activity in the field of textile with export management.
4. Use their conceptual knowledge for analysis the performance of the Indian textile business.

Course Contents:

Unit I

Definition of Marketing Management, its function and objectives, Marketing cost and distribution channel, Classification of products.

Unit II

Types of buyers, difference between importer buyer and retail buyer, different types of retail buyer, consumer behaviour and different aspects of buying decision, market segmentation & fragmentation, marketing strategy and marketing mix, product life cycle, sales promotion.

Unit III

Merchandising, Main merchandising functions, factors affecting merchandising, fashion merchandising - its difference from merchandising, roles and responsibilities of a



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merchandiser, seasonality of fashion marketing.

Unit IV

International sourcing and marketing of apparel, Quality issues in garment export, competitive forces in garment industry, Value addition processes in garment marketing, performance of Indian garment exports, textile and apparel trade policies.

Unit V

Competitive position of Indian garment exports vis a vis competing countries. Concept of international marketing timings, storing & pricing of product.

References:

1. Principles of marketing - Philip Kotler
2. Textiled and apparel in the international economy - K.G. Dickerson
3. Garment Exports - DO Koshy
4. Consumer behavior - Schiffman & Kanuk
5. Fashion Marketing, Mike Easey
6. Fashion Merchandising, Alaine Stone, Jean and samples
7. Principles of marketing - Philip Kotler
8. Textiled and apparel in the international economy - K.G. Dickerson
9. Garment Exports - DO Koshy
10. Consumer behavior - Schiffman & Kanuk
11. Fashion Marketing, Mike Easey
12. Fashion Merchandising, Alaine Stone, Jean and samples.



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Name of Program: B.TECH (Textile Engineering) BTTX725 ELECTIVE IV

SUBJECT CODE	CATEGORY	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTTX725	DCS	ENGINEERING OF TEXTILE STRUCTURE	60	20	20	-	-	3	1	0	4

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):

1. Course will provide the theoretical aspects of development of yarns structure.
2. Course will provide the theoretical knowledge of tensile behaviour, configuration of fiber in the yarn structure.
3. Course will provide various theoretical model for predicting the behaviour of the yarn and fabric

Course Outcomes (COs)

Student will be able to

1. Identify, analyse and solve the complex textile engineering problems in the yarn
2. Demonstrate their skill in the R and D work of textile product.
3. Remember the mathematical relationship in formulating the various properties.

Course Contents:

Unit I

Yarn diameter and count, density, specific volume, Yarn count and twist Factor, Twist Angle and helix angle, twist contraction and retraction packing of fibers and packing fraction, close packing and open packing of fibres, optimum level of twist. Solving of various related numerical problems.

Unit II

Effect of twist on yarn strength, Stress-stain curve, Young's modulus, tenacity, RKM etc. Ideal yarn geometry - assumptions, various relationship and related calculation, mechanics of yarn structure, tensile behavior of staple yarn and tensile behavior of continuous filament yarn, low strain and large stain model. Solving of various related numerical problems.



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Unit III

Migration of fibre, ideal migration, factors controlling and effect of migration in yarn structure, Morton's view of fiber migration in yarn. Qualitative and quantitative approaches to migration. Various models, examples and solutions.

Unit IV

Woven cloth setting theories, elements of woven fabric geometry- ends and picks, count, cover factor, crimp and weight. Cover factor and its relationship with fabric weight. Solving of various related numerical problems.

Unit V

Pierce's simple geometry of plain weave, derivation of basic equations, practical application of cloth geometry, crimp interchange, fabric assistance. Drape of fabric and drape coefficient.

References:

1. Pierce paper on fabric geometry
2. Textile yarn- Grosberg
3. Textile yarn- Technology, Structure and Application – B.C. Goswami, Martindale, Scardino
4. Structural Mechanics of Fibers , Yarns & Fabrics - Hearl , Grosberg & Backer
5. Textile Manufacturing – M.G. Kulkarni



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Name of Program: B.TECH (Textile Engineering) BTTX735 ELECTIVE IV

SUBJECT CODE	CATEGORY	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTTX735	DCS	COLOUR PHYSICS AND COMPUTER COLOUR MATCHING	60	20	20	-	-	3	1	0	4

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):

1. Describe various elements of colour physics.
2. Recognize the various colours used in textile industry.
3. Compare the various colours present in dye.

Course Outcomes (COs)

Student will be able

1. Prepare project report for given dye recipe.
2. Reproduce dye to match the colour of given sample.
3. Show and tell the accept or percept of given sample .
4. Simulate the colours in different dyes.

Course Contents:

Unit I

Fundamentals of color science, what is colour, perception of color, color mixing laws, confusion in color perception, meta-merism.

Unit II

Color order system: Munsell system, color atlas system, CIE system, CIE tri-stimulus values, chromaticity co-ordinates , transform of the CIE system, Equation index for color spaces, whiteness assessment, yellowness index.



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Unit III

Optical theory for color matching: Reflectance curves of dyed specimens, Kubelka – Munk theory, application of K-M theory to textiles, Developments after K-M theory.

Unit IV

Color measuring instruments: Principles of color measuring instruments, optical sensors signal processor, features of the available color instruments, selection of instrument and its utilization.

Unit V

Color difference Pass/fail system and shade sorting: Color difference and chromaticity diagram, color difference equation, CIE color difference equations, Acceptability and perceptibility, modified color difference equations based on ABLAB. Pass/fail system, setting up tolerance limit.

References:

1. Instrumental Color Measurements & CA Color Matching for Textiles; H.S. Shah & .S. Gandhi
2. Color Physics for Industry – Roderick Mcdonald.
3. Computer Color Analysis – A.D. Sule
4. Color for Textiles – A user handbook – Wilfred Ingamells
5. Modern Concepts of Color and Appearance – Asim Kr. Roy Choudhary
6. The Theory of Coloration of Textiles – 2nd Edition – A. Johnson
7. Color Technology in the Textile Industry, 2nd Ed. Cairman, AATCC



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Name of Program: B.TECH (Textile Engineering)

SUBJECT CODE	CATEGORY	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTTX706	DCS	PROJECT WORK	-	-	-	30	20	0	0	1	1

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;
***Teacher Assessment** shall be based following components: Quiz/Assignment/Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):

1. Course will expose the students to the method of starting the research work through literature review and analysis of a particular problem.
2. Course will provide the students knowledge about the latest instrument and machinery in the institute lab, various research lab and industry.

Course Outcomes (COs)

Student will be able to

1. Apply the knowledge to study a particular problem
2. Analyse and solve the problem coming during their research work.
3. To create an aptitude for a research work

Course Contents:

Each student will work in the institute lab / outside research / industry institute to study and conduct their research work.

The student performs their project work to a particular project topic under the guidance of the faculty guide allotted to them.

Each student has to give three power point presentations during the semester in front of the faculty members.

At the end of the semester each student will be required to submit a report of their work done during the semester which will be assessed by their guide for the internal valuation. The student is also required to appear in the end sem exam.



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Name of Program: B.TECH (Textile Engineering)

SUBJECT CODE	CATEGORY	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTIX707	DCS	SEMINAR /GROUP DISCUSSION	-	-	-	-	50	0	1	0	1

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;
***Teacher Assessment** shall be based following components: Quiz/Assignment/Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):

1. Learn to give a presentation
2. Help student to develop knowledge

Course Outcomes (COs)

Student will be able to

1. Demonstrate their skill of communications
2. Create a presentations using ICT
3. Collect various about latest development on some specific topics.

Course Contents:

Each Students are required to give four power point presentations on the various topics allotted to them separately.